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ABSTRACT

This paper describes development of recommended guidelines, by a subcommittee of the American Diabetes Association, concerning in-school management of hypoglycemia. Two tables replicate a portion of the guidelines related to: (1) the recognition and treatment of hypoglycemia, and (2) adjustment to school. Other information included in the guidelines involves: definition, incidence, and signs and symptoms of diabetes; general management of diabetes including insulin injections, meal planning, and blood glucose monitoring; and the recognition and treatment of diabetic ketoacidosis. Also described is a 2-day seminar on diabetes management for school nurses in Maryland offered as part of a 5-day continuing education seminar. (DB)

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Professional Development

Guidelines for the Student with Diabetes: A School Policy

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Many parents of children with diabetes worry than no one will be available at school who is capable of handling a diabetes-related emergency. School nurses generally have adequate knowledge of the medical care of insulin-dependent diabetes mellitus (IDDM), but are not always available on a full- or even part-time basis.[1-2] Other school personnel, such as teachers, secretaries, and health aides, must frequently handle medical emergencies, although they usually have no specific training in emergency medicine. Teachers often are unfamiliar with the need for timed snacks and meals, and may even lack a basic understanding of diabetes.[3-5] Parents are concerned about the ability of teachers to manage the special needs of the child with diabetes and report that insulin reactions often are not recognized or treated early enough.[6] Therefore, a committee was formed to address these issues.

Committee Formation

The Johns Hopkins Childrens Center Diabetes Clinic and the American Diabetes Association (ADA), Maryland Affiliate, shared the parental concerns and had broader concerns related to the lack of a consistent approach in the school management of hypoglycemia. A Professional Affairs Subcommittee of the ADA was formed to establish guidelines for in-school management of hypoglycemia. The committee consisted of pediatric endocrinologists, diabetes nurse educators, and the program director of the ADA.

Policy Development

School superintendents in Maryland were contacted by letter, inquiring whether guidelines for the management of hypoglycemia in the school were needed; few administrators responded. Next, a nurse consultant for the Department of Health and Mental Hygiene for the State of Maryland was contacted. This person was responsible for initiating medical policies in Maryland public schools. The nurse consultant recommended developing comprehensive guidelines that would encompass all aspects of diabetes management, since some children require specialized care and a few children even require emergency transportation to hospitals for diabetic ketoacidosis. Such comprehensive guidelines could be distributed to local school health supervisors to be used as the basis for specific health policy and for the development of individualized nursing care plans.

The guidelines that were developed were reviewed by the ADA subcommittee, various committees in the school system, and parents of children with diabetes. Since the guidelines would be used by all school personnel, the information was written for nonmedical staff. The development, revision, and approval of these guidelines took two years. The Maryland Department of Education, the Maryland Department of Health and Mental Hygiene, and the ADA, Maryland Affiliate, approved the guidelines in May 1991. *Guidelines for the Child with Diabetes in the Classroom* is now policy in all Maryland public schools, from kindergarten through high school.

A portion of the guidelines related to hypoglycemia and school adjustment are shown in Tables 1 and 2. Other information included in the comprehensive guidelines involves: definition, incidence, and signs and symptoms of diabetes; general management of diabetes, including insulin injections, meal planning, and blood glucose monitoring; and the recognition and treatment of diabetic ketoacidosis. A copy of the complete guidelines may be obtained by contacting the corresponding author.

Implementation

School nurses were targeted to introduce the guidelines to the Maryland public schools. Each year many school nurses voluntarily attend a five-day continuing education program concerning student health problems. Because many health-related topics are presented concurrently, the nurses must choose which sessions they will attend.

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Table 1. Recognition and Treatment of Hypoglycemia (low blood sugar or insulin reaction)

Hypoglycemia is the most common medical emergency you may encounter in the school in a child with diabetes. IT REQUIRES PROMPT RECOGNITION AND IMMEDIATE TREATMENT. The most likely times to suspect low blood sugar would be close to a meal or snack or following physical activity such as recess, gym, band, etc.

Recognition

A. Early Warning Signs
   1. Shakiness and tremors
   2. Pale appearance
   3. Rapid and strong pulse
   4. Sweating
   5. Unusual hunger

B. Central Nervous System Signs (caused by lack of sugar to the brain)
   1. Sudden mood swings or inappropriate behavior
   2. Drowsiness and sleepiness or inability to concentrate
   3. Headache
   4. Confusion
   5. Yawning, lethargy

C. Severe Reactions
   1. Loss of consciousness
   2. Convulsions or seizures

Treatment

Treat as soon as you recognize symptoms (ie, early warning signs). Initial treatment should be done in the classroom, without disruption when possible. If in doubt as to whether the symptoms indicate low blood sugar, it is always best to treat with one of the following.

1. Four to six ounces fruit juice or soda (not diet)
2. One tablespoon honey or sugar
3. Commercially prepared items such as Glutose, Insta-glucose, BD glucose tablets, or Cake Mate icing (may be provided by patients)

Note: If symptoms do not subside within 10 minutes, repeat the treatment. If the child does not respond to treatment, call for emergency help (911 where available) and notify parents.

Other Recommendations

1. If a meal or snack is not scheduled within the next 15 minutes, follow initial treatment with a protein and carbohydrate snack such as milk, cheese, or peanut butter and crackers.
2. **Never** leave a child alone during a low-blood-sugar reaction.
3. You cannot harm a child with diabetes by giving sugar if the blood sugar is not low. It will only increase the blood sugar level for a short period of time.
4. If the child is unable to swallow liquids or food, is unconscious, or having a seizure, Glucagon (a prescription medication that is given by injection) may be administered by the school nurse.
5. If Glucagon is given or if the child does not respond to oral treatment or is unconscious or having a seizure, call for emergency help (911 where available) and contact the parents or guardian immediately. Notify the school administrator.
6. Notify the parents of all incidents of low-blood-sugar reaction. It should not be necessary for parents to come to school for every reaction.

A two-day seminar on diabetes management was developed and included in the continuing education program (Table 3). Diabetes nurse educators, pediatric endocrinologists, a dietician, a psychologist, an ADA representative, and children and adolescents with diabetes and their parents participated in the seminar. Of the 134 nurses who attended the five-day program, 40 school nurses participated in the diabetes seminar.

The practical aspects of diabetes management were stressed throughout the workshop. School nurses were taught how to appropriately manage insulin reactions. The nurses were interested in learning how the children and parents felt about the school's performance in handling problems related to diabetes. Panel discussions allowed the children and parents to express their concerns. Overall, the nurses were eager to learn how to improve the school-related care of children with diabetes. Following implementation of the guidelines, an evaluation of the effectiveness will be conducted. The two-day diabetes seminar also will be repeated for school nurses in 1992.

A variety of school health services are available in Maryland, including aides, licensed practical nurses, or registered nurses. A school nurse supervisor is assigned to each county in the state. *Guidelines for the Child with Diabetes in the Classroom* were distributed to the school nurse supervisors and the pupil services director in each county, who then were responsible for educating school personnel about the policy. The school nurse was responsible for translating the policy into an individualized care plan.

Summary

The necessity of educating all school personnel about how to recognize and treat hypoglycemia cannot be overemphasized. School nurses have the opportunity and specialized training to provide this education using the guidelines developed. However, the nurse should concentrate her energy on the individual child with diabetes. Preparing a nursing care plan and working closely with teachers who have students with diabetes in their classrooms can produce the best outcome for the children and the school.

Table 2. Adjustment to School

1. Meet with the parents and child at beginning of the school year to discuss concerns.
2. Develop a nursing care plan including arrangements for blood/urine testing and/or insulin/Glucagon injection. The arrangements should include a private space; handwashing facilities; containers for trash and disposal of sharp instruments; adult support, monitoring, or assistance as indicated; materials to record results; and food sources of readily absorbable sugar.
3. Notify appropriate school personnel, including substitute teachers, about children with diabetes.
4. Most children with diabetes require snacks during the school day. Arrangements for snacks should be made with the least disruption to the child's school day. It is important that meals and snacks be eaten on time to prevent low blood sugar. Arrangements for the child to bring the snacks from home should be made during the meeting with parents at the beginning of the school year.
5. Allow minor low-blood-sugar reactions to be treated in the classroom. This should be done calmly and efficiently. Most children are taught at an early age to carry some form of sugar (eg, Cake Mate icing) for use in a low-blood-sugar emergency. Some children recognize oncoming symptoms and prefer to respond unobtrusively. As a back-up, teachers should have glucose preparations such as Insta-Glucose, Lifesavers, or Cake Mate to treat reactions. All reactions should be recorded.
6. Since children with diabetes should avoid foods that are high in sugar, parties or special events should include non-sugary foods a person with diabetes may eat (eg, fruit, popcorn). When possible, use nonfood items for rewards or treats for all children.
7. Children with diabetes have no restrictions on physical activity and should be encouraged to participate in sports, gym class, etc.
8. Some children enjoy demonstrating blood glucose monitoring or insulin injection techniques during health education classes or for science projects. In a unique way, such demonstrations allow teachers and other children to understand the complexities of living with diabetes and give the child with diabetes a sense of feeling important. Participation should be totally voluntary.
9. Appropriate arrangements should be made so that the child with diabetes may attend field trips and other out-of-school events.
10. Above all, try to treat the child with diabetes as you treat other children in the class.

Table 3. School Nurse Workshop: Caring for Children and Adolescents with Diabetes

	Topics
Day 1	• Classification/Etiology/Pathophysiology
	• Acute and Chronic Complications
	• Insulin/Insulin Delivery Systems, Blood Glucose Monitoring, and Exercise
	• Nutritional Management
	• Panel Discussion: Parents and Young Children
	• Bill of Rights/Role of the School Nurse
Day 2	• Managing Emergencies
	• Diabetes Supplies
	• Resources
	• *Guidelines for the Child with Diabetes in the Classroom*
	• Psychological Interventions
	• Panel Discussion: Teens

An established school policy provides teachers with concrete information for handling emergencies and provides parents with administrative support for their valid concerns. The policy for diabetes management could also be useful for dealing with a variety of other chronic childhood illnesses encountered in the classroom.

The guidelines for diabetes management are written in general terms and are not intended to replace existing educational programs. Therefore, parents still need to meet with school personnel at the beginning of each school year to discuss the individual needs of their child. Parents also should provide the supplies necessary for treating hypoglycemia or for monitoring blood glucose levels.

As health care professionals, we must continue to work with all school systems to provide ongoing health education. Our major responsibility is to assist schools in any possible way to meet the needs of the student with diabetes.

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